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10/522,023	01/21/2005	Akira Kuramori	ION2.013APC	1949

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EXAMINER	
PANI, JOHN	

ART UNIT	PAPER NUMBER
3736	

NOTIFICATION DATE	DELIVERY MODE
06/05/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/522,023	KURAMORI ET AL.	
	Examiner	Art Unit	
	JOHN PANI	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/30/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

2. Applicant's arguments, see pg. 2 lines 1-4, filed 5/12/2008, with respect to the rejection(s) of claim(s) 1-14 under 35 U.S.C. § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly cited art below.

Claim Objections

3. Claims 3, 8 and 11 are objected to because of the following informalities:

In reference to Claim 3

In line 4 it is suggested to replace "the smaller value" with --a smaller value--.

In reference to Claim 8

In line 8 it is suggested to replace "and amplifying" with --; and a step of amplifying--. Appropriate correction is required.

In reference to Claim 11

In lines 2-3 it is suggested to replace "the waveform processing unit" with --a waveform processing unit--.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-5 and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In reference to Claims 3, 4, 10, and 11

In claim 3 lines 3-7 and claim 10 lines 4-7 it is unclear exactly what the waveform processing unit/step is performing. It is unclear exactly how “a composite waveform” is being used “as a signal value of the synchronous contraction waveform”. Specifically it is unclear whether the composite waveform *is* the synchronous contraction waveform, i.e. that a composite waveform is formed by beginning with two myoelectric potential time series waveforms which have corresponding time series, and at each time point in the time series, the waveform values from the two waveforms are compared with each other, and the smaller value is selected to be a data point at the same time point in the composite waveform, and that this composite waveform is used as the synchronous contraction waveform; or if instead the composite waveform is formed by choosing the smallest data point in the time intervals of claim 2 and using this as a "signal value of the synchronous contraction waveform”. The use of the terminology “selecting the smaller value at each given time of the time-series waveforms of the pair of myoelectic potentials that have been subjected to the full-wave rectification" is unclear regarding what is meant by "at each given time", as "time" lacks antecedent basis in the claims

unless it somehow refers to "the time intervals" of claim 2. Additionally, by placing the phrase “as a signal value of the synchronous contraction waveform” after multiple clauses with no punctuation, it is difficult to determine exactly how that phrase relates to the multiple other phrases. The above described lack of clarity regarding the scope of the claims renders the claims indefinite.

In reference to Claims 5 and 12

In claim 5 lines 3-6 and claim 12 lines 4-7 it is unclear exactly what the waveform processing unit/step is performing. It is unclear exactly how “a geometric mean value” is being designated as “a signal value of the synchronous contraction waveform”. Specifically, it is unclear whether the synchronous contraction waveform is a new waveform formed from the pair of myoelectric potential time series waveforms such that the pair of waveforms have corresponding time series, and that at each time point in the time series, a geometric average of the values is calculated and used as the data for a corresponding time point in the newly formed synchronous contraction waveform; or if instead a geometric mean of all of the values of the pair of time series waveforms is used as a signal value of the synchronous contraction waveform in some other way. The use of the terminology “designates a geometric mean value of signal values at given time of the time-series waveforms of the pair of myoelectic potentials that have been subjected to the full-wave rectification" is unclear regarding what is meant by "at each given time", as "time" lacks antecedent basis in the claims unless it somehow refers to "the time intervals" of claim 2. Additionally, by placing the phrase “as a signal value of the synchronous contraction waveform” after multiple clauses with no

punctuation, it is difficult to determine exactly how that phrase relates to the multiple other phrases. The above described lack of clarity regarding the scope of the claims renders the claims indefinite.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/942,045. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are anticipated by the claims of the copending application, because the claims of the instant application are generic to the claims of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,667,513 to Konno ("Konno").

10. Konno teaches:

In reference to Claim 1

An apparatus capable of evaluating a degree of work comfort by measuring myoelectric potentials during a work activity which is performed antagonistically by a pair of left and right muscles provided in a human body in bilaterally symmetrical relation, the apparatus comprising: a pair of detection sensors (**1** and **1'**, or **3** and **4**, or **5** and **6**) for detecting myoelectric potentials of a pair of left and right muscles provided in the human body in bilaterally symmetrical relation (see Fig. 5), wherein the myoelectric potentials could be produced by actions of the pair of muscles of the human body during the work activity; an amplifier (**3**) for amplifying the pair of myoelectric potentials detected by the detection sensors; a waveform processing unit (**8**) for generating a synchronous contraction waveform of the pair of muscles from time-series

waveforms of the pair of amplified myoelectric potentials (see Fig. 5, the device generates a synchronous depiction of contraction waveforms); and an evaluation unit (**9** see col. 4-6) for evaluating a level of the degree of comfort of the work activity (the ratio of EMG to force is an indicator of fatigue/pain col. 6 lines 47-52) from intensity information of the generated synchronous contraction waveform.

In reference to Claim 2

The apparatus of claim 1 (see above) wherein the evaluation unit calculates the intensity information of the generated synchronous contraction waveform at specified time intervals (see col. 4 lines 40-60, determines maximum) and evaluates the level of the degree of comfort of the work activity at the specified time intervals based on results of the calculation (col. 4 line 60 - col. 5 line 20).

In reference to Claim 6

The apparatus of claim 1 or 2 (see above) wherein the work activity could comprise steering of a wheel in driving a vehicle.

In reference to Claim 7

The apparatus of claim 1 or 2 (see above) wherein the pair of muscles comprise deltoid muscles positioned in shoulder of the human body (col. 2 line 51).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 8, 9, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Workload of using a driver assistance system" to Tanaka et al. ("Tanaka") in view of Konno.

In reference to Claims 8 and 13

Tanaka teaches a method for determining driver fatigue in which the activity is performed antagonistically by a pair of left and right muscles provided in a human body in bilaterally symmetrical relation by measuring myoelectric potential (see pgs. 383-384). However, Tanaka does not teach detecting the myoelectric potentials of the pair of left and right muscles, generating a synchronous contraction waveform, and evaluating a level of degree of comfort from intensity information of the generated synchronous contraction waveform.

Konno teaches a method of evaluating a degree of work comfort by measuring myoelectric potentials during a work activity performed by a pair of left and right muscles provided in a human body in bilaterally symmetrical relation, the method comprising: a step of detecting the myoelectric potentials of the pair of left and right muscles provided in the human body in bilaterally symmetrical relation (see Fig. 5 and col. 3-4), the myoelectric potentials produced by actions of the pair of muscles of the human body during work activity; amplifying the pair of myoelectric potentials (col. 3 lines 55-65); generating a synchronous contraction waveform of the pair of muscles from time-series waveforms of the pair of amplified myoelectric potentials (see Fig. 5, the device generates a synchronous depiction of contraction waveforms); and

evaluating a level of the degree of comfort of the work activity (the ratio of EMG to force is an indicator of fatigue/pain col. 6 lines 47-52) from intensity information of the generated synchronous contraction waveform (see col. 4-6).

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the method of Tanaka by substituting, for the method of measuring the EMG signal of a single deltoid and comparing with steering torque, the method taught by Konno which measures EMG from two bilaterally symmetrical muscles, displays the waveforms, and determines a ratio of EMG to force in order to determine fatigue/pain as this would provide a quantitative measure of fatigue when performing a task, as taught by Konno.

In reference to Claim 9

Tanaka in view of Konno teach the method of claim 8 (see above) and Konno further teaches that the step of evaluating the level of the degree of comfort of the work activity includes calculating the intensity information of the generated synchronous contraction waveform at specified time intervals (see col. 4 lines 40-60, determines maximum) and evaluating the level of degree of comfort of the work activity at the specified time intervals based on results of the calculation (col. 4 line 60 - col. 5 line 20).

In reference to Claim 13

Tanaka in view of Konno teach the method of claims 8 or 9 (see above) and Tanaka further teaches that the work activity comprises steering of a wheel in driving a vehicle (see pg. 384 section 5.1).

In reference to Claim 14

Tanaka in view of Konno teach the method of claims 8 or 9 (see above) and Konno further teaches that the pair of muscles comprise deltoid muscles positioned in the shoulders of the human body (col. 2 line 51).

Allowable Subject Matter

13. Claims 3-5 and 10-12 appear as though they would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims, and pending issuance of a terminal disclaimer to overcome the above-noted double patenting issues.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN PANI whose telephone number is (571)270-1996. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP 5/29/08

/Max Hindenburg/
Supervisory Patent Examiner, Art Unit 3736